



**Industrial  
&  
Marine  
Coatings**

**4.53  
MACROPOXY® 646  
FAST CURE EPOXY**

**PART A  
PART B**

**B58-600  
B58V600**

**SERIES  
HARDENER**

**PRODUCT INFORMATION**

Revised 5/05

PRODUCT DESCRIPTION		RECOMMENDED USES																																					
<p><b>MACROPOXY 646 FAST CURE EPOXY</b> is a high solids, high build, fast drying, polyamide epoxy designed to protect steel and concrete in industrial exposures. Ideal for maintenance painting and fabrication shop applications. The high solids content ensures adequate protection of sharp edges, corners, and welds. This product can be applied directly to marginally prepared steel surfaces.</p> <ul style="list-style-type: none"> <li>• Low VOC</li> <li>• Low odor</li> <li>• Chemical resistant</li> <li>• Abrasion resistant</li> </ul>		<ul style="list-style-type: none"> <li>• Marine applications</li> <li>• Fabrication shops</li> <li>• Pulp and paper mills</li> <li>• Power plants</li> <li>• Offshore platforms</li> <li>• Mill White and Black are acceptable for immersion use for salt water and fresh water, not acceptable for potable water</li> <li>• Suitable for use in USDA inspected facilities</li> <li>• Refineries</li> <li>• Chemical plants</li> <li>• Tank exteriors</li> <li>• Water treatment plants</li> </ul> <p>Conforms to AWWA D102-03 OCS #5</p>																																					
PRODUCT CHARACTERISTICS		PERFORMANCE CHARACTERISTICS																																					
<p><b>Finish:</b> Semi-Gloss</p> <p><b>Color:</b> Mill White, Black and a wide range of colors available through tinting</p> <p><b>Volume Solids:</b> 72% ± 2%, mixed Mill White</p> <p><b>Weight Solids:</b> 85% ± 2%, mixed Mill White</p> <p><b>VOC (EPA Method 24):</b> Unreduced: &lt;250 g/L; 2.08 lb/gal mixed Reduced 10%: &lt;300 g/L; 2.50 lb/gal</p> <p><b>Mix Ratio:</b> 1:1 by volume</p> <p><b>Recommended Spreading Rate per coat:</b> Wet mils: 7.0 - 13.5 Dry mils: 5.0 - 10.0* Coverage: 116 - 232 sq ft/gal approximate</p> <p><b>NOTE:</b> Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance. * See Recommended Systems</p> <p><b>Drying Schedule @ 7.0 mils wet and 50% RH:</b></p> <table border="1"> <thead> <tr> <th></th> <th>@ 40°F</th> <th>@ 77°F</th> <th>@ 100°F</th> </tr> </thead> <tbody> <tr> <td>To touch:</td> <td>4-5 hours</td> <td>2 hours</td> <td>1½ hours</td> </tr> <tr> <td>To handle:</td> <td>48 hours</td> <td>8 hours</td> <td>4½ hours</td> </tr> <tr> <td>To recoat:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>  minimum:</td> <td>48 hours</td> <td>8 hours</td> <td>4½ hours</td> </tr> <tr> <td>  maximum:</td> <td>3 months</td> <td>3 months</td> <td>3 months</td> </tr> <tr> <td>Cure for</td> <td></td> <td></td> <td></td> </tr> <tr> <td>  service:</td> <td>10 days</td> <td>7 days</td> <td>4 days</td> </tr> <tr> <td>  immersion:</td> <td>14 days</td> <td>7 days</td> <td>4 days</td> </tr> </tbody> </table> <p>If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity and film thickness dependent.</p> <p><b>Pot Life:</b> 10 hours 4 hours 2 hours</p> <p><b>Sweat-in-time:</b> 30 minutes 30 minutes 15 minutes</p> <p><b>Shelf Life:</b> 36 months, unopened Store indoors at 40°F to 100°F.</p> <p><b>Flash Point:</b> 60°F, TCC, mixed</p> <p><b>Reducer/Clean Up:</b> Reducer, R7K15 In California: Reducer R7K111 or Oxsol 100</p>			@ 40°F	@ 77°F	@ 100°F	To touch:	4-5 hours	2 hours	1½ hours	To handle:	48 hours	8 hours	4½ hours	To recoat:				minimum:	48 hours	8 hours	4½ hours	maximum:	3 months	3 months	3 months	Cure for				service:	10 days	7 days	4 days	immersion:	14 days	7 days	4 days	<p><b>System Tested:</b> (unless otherwise indicated) Substrate: Steel Surface Preparation: SSPC-SP10 1 ct. Macropoxy 646 Fast Cure @ 6.0 mils dft</p> <p><b>Abrasion Resistance:</b> Method: ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load Result: 84 mg loss</p> <p><b>Accelerated Weathering - QUV, Zinc Clad II Plus Primer:</b> Method: ASTM D4587, QUV-A, 12,000 hours Results: passes</p> <p><b>Adhesion:</b> Method: ASTM D4541 Result: 1,037 psi</p> <p><b>Corrosion Weathering, Zinc Clad II Plus Primer:</b> Method: ASTM D5894, 36 cycles, 12,000 hours Result: Rating 10 per ASTM D714 for blistering Rating 9 per ASTM D610 for rusting</p> <p><b>Direct Impact Resistance:</b> Method: ASTM D2794 Result: 30 in. lb.</p> <p><b>Dry Heat Resistance:</b> Method: ASTM D2485 Result: 250°F</p> <p><b>Exterior Durability:</b> Method: 1 year at 45° South Result: Excellent, chalks</p> <p><b>Flexibility:</b> Method: ASTM D522, 180° bend, 3/4" mandrel Result: Passes</p> <p><b>Immersion:</b> Method: 1 year fresh and salt water Result: Passes, no rusting, blistering, or loss of adhesion</p> <p><b>Irradiation-Effects on Coatings used in Nuclear Power Plants</b> Method: ANSI 5.12 / ASTM D4082-89 Result: Passes</p> <p><b>Pencil Hardness:</b> Method: ASTM D3363 Result: 3H</p> <p><b>Permeability Rating:</b> Method: ASTM D1653 Result: 0.154 mg/cm<sup>2</sup></p> <p><b>Salt Fog Resistance, Zinc Clad II Plus Primer::</b> Method: ASTM B117, 6,500 hours Result: Rating 10 per ASTM D610 for rusting Rating 9 per ASTM D1654 for corrosion</p> <p><b>Slip Coefficient, Mill White:</b> Method: AISC Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts Result: Class A, 0.36</p> <p>Epoxy coatings may darken or discolor following application and curing.</p>	
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HARDENER**

**PRODUCT INFORMATION**

RECOMMENDED SYSTEMS	SURFACE PREPARATION
<p><b>Immersion and atmospheric:</b></p> <p><b>Steel:</b> 2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct</p> <p><b>Concrete/Masonry, smooth:</b> 2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct</p> <p><b>Concrete Block:</b> 1 ct. Kem Cati-Coat HS Epoxy Filler/Sealer @ 10.0 - 20.0 mils dft, as needed to fill voids and provide a continuous substrate. 2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct</p> <p><b>Atmospheric:</b> <b>*Steel:</b> (Shop applied system, new construction, AWWA D102-03, can also be used at 3 mils minimum dft when used as an intermediate coat as part of a multi-coat system) 1 ct. Macropoxy 646 Fast Cure Epoxy @ 3.0 - 6.0 mils dft 1-2 cts. of recommended topcoat</p> <p><b>Steel:</b> 1 ct. Recoatable Epoxy Primer @ 4.0 - 6.0 mils dft 2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct</p> <p><b>*Steel:</b> 1 ct. Macropoxy 646 @ 4.0 - 6.0 mils dft 1-2 cts. Acrolon 218 Polyurethane @ 3.0 - 6.0 mils dft/ct or Hi-Solids Polyurethane @ 3.0 - 5.0 mils dft/ct or SherThane 2K Urethane @ 2.0 - 4.0 mils dft/ct</p> <p><b>Steel:</b> 2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct 1-2 cts. Tile-Clad HS Epoxy @ 2.5 - 4.0 mils dft/ct</p> <p><b>Steel:</b> 1 ct. Zinc Clad II Plus @ 3.0 - 6.0 mils dft 1 ct. Macropoxy 646 @ 5.0 - 10.0 mils dft 1-2 cts. Acrolon 218 Polyurethane @ 3.0 - 6.0 mils dft/ct</p> <p><b>Steel:</b> 1 ct. Zinc Clad III HS @ 3.0 - 5.0 mils dft or 1 ct. Zinc Clad IV @ 3.0 - 5.0 mils dft 1 ct. Macropoxy 646 @ 5.0 - 10.0 mils dft 1-2 cts. Acrolon 218 Polyurethane @ 3.0 - 6.0 mils dft/ct</p> <p><b>Aluminum:</b> 2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct</p> <p><b>Galvanizing:</b> 2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct</p>	<p>Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure good adhesion. Refer to product Application Bulletin for detailed surface preparation information.</p> <p>Minimum recommended surface preparation:</p> <p>Iron &amp; Steel</p> <p>Atmospheric: SSPC-SP2/3 Immersion: SSPC-SP10/NACE 2, 2-3 mil profile</p> <p>Aluminum: SSPC-SP1 Galvanizing: SSPC-SP1</p> <p>Concrete &amp; Masonry</p> <p>Atmospheric: SSPC-SP13/NACE 6, or ICRI 03732, CSP 1-3 Immersion: SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI 03732, CSP 1-3</p>
	<p style="text-align: center;"><b>TINTING</b></p> <p>Tint Part Awth 844 Colorants at 150% strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.</p> <p>Tinting is not recommended for immersion service.</p>
	<p style="text-align: center;"><b>APPLICATION CONDITIONS</b></p> <p>Temperature: 40°F minimum, 120°F maximum (air, surface, and material) At least 5°F above dew point</p> <p>Relative humidity: 85% maximum</p> <p>Refer to product Application Bulletin for detailed application information.</p>
	<p style="text-align: center;"><b>ORDERING INFORMATION</b></p> <p>Packaging:</p> <p>Part A: 1 and 5 gallon containers Part B: 1 and 5 gallon containers</p> <p>Weight per gallon: 12.7 ± 0.2 lb mixed, may vary by color</p>
<p>The systems listed above are representative of the product's use. Other systems may be appropriate.</p>	<p style="text-align: center;"><b>SAFETY PRECAUTIONS</b></p> <p>Refer to the MSDS sheet before use.</p> <p>Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.</p>

DISCLAIMER	WARRANTY
<p>The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.</p>	<p>The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.</p>



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PART B**

**B58-600  
B58V600**

**SERIES  
HARDENER**

**APPLICATION BULLETIN**

Revised 5/05

SURFACE PREPARATION	APPLICATION CONDITIONS		
<p>Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.</p> <p><b>Iron &amp; Steel, Atmospheric Service:</b> Minimum surface preparation is Hand Tool Clean per SSPC-SP2. Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. For better performance, use Commercial Blast Cleaning per SSPC-SP6/NACE 3, blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils). Prime any bare steel within 8 hours or before flash rusting occurs.</p> <p><b>Iron &amp; Steel, Immersion Service:</b> Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2-3 mils). Remove all weld spatter and round all sharp edges by grinding. Prime any bare steel the same day as it is cleaned.</p> <p><b>Aluminum</b> Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1.</p> <p><b>Galvanized Steel</b> Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1 (recommended solvent is VM&amp;P Naphtha). When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned.</p> <p><b>Concrete and Masonry, Atmospheric Service:</b> For surface preparation, refer to NACE 6/SSPC-SP13, or ICRI 03732, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F. Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with a cement patching compound. Weathered masonry and soft or porous cement board must be brush blasted or power tool cleaned to remove loosely adhering contamination and to get to a hard, firm surface. Laitance must be removed by etching with a 10% muriatic acid solution and thoroughly neutralized with water.</p> <p><b>Concrete and Masonry, Immersion Service:</b> For surface preparation, refer to SSPC-SP13/NACE 6, Section 4.3.1 or 4.3.2, or ICRI 03732, CSP 1-3.</p> <p><b>Previously Painted Surfaces</b> If in sound condition, clean the surface of all foreign material. Smooth, hard or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this product attacks the previous finish, removal of the previous coating may be necessary. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.</p>	<p>Temperature: 40°F minimum, 120°F maximum (air, surface, and material) At least 5°F above dew point</p> <p>Relative humidity: 85% maximum</p> <tr> <th colspan="2" data-bbox="829 762 1515 804">APPLICATION EQUIPMENT</th> </tr> <p>The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.</p> <p><b>Reducer/Clean Up</b> ..... Reducer R7K15 In California ..... Reducer R7K111</p> <p><b>Airless Spray</b></p> <p>Pump ..... 30:1 Pressure ..... 2800 - 3000 psi Hose ..... 1/4" ID Tip ..... .017" - .023" Filter ..... 60 mesh Reduction ..... As needed up to 10% by volume</p> <p><b>Conventional Spray</b></p> <p>Gun ..... DeVilbiss MBC-510 Fluid Tip ..... E Air Nozzle ..... 704 Atomization Pressure .. 60-65 psi Fluid Pressure ..... 10-20 psi Reduction ..... As needed up to 10% by volume Requires oil and moisture separators</p> <p><b>Brush</b></p> <p>Brush ..... Nylon/Polyester or Natural Bristle Reduction ..... Not recommended</p> <p><b>Roller</b></p> <p>Cover ..... 3/8" woven with phenolic core Reduction ..... Not recommended</p> <p>If specific application equipment is listed above, equivalent equipment may be substituted.</p>	APPLICATION EQUIPMENT	
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**APPLICATION PROCEDURES**

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with power agitation. Make certain no pigment remains on the bottom of the can. Then combine one part by volume of Part A with one part by volume of Part B. Thoroughly agitate the mixture with power agitation. Allow the material to sweat-in as indicated prior to application. Re-stir before using.

If reducer solvent is used, add only after both components have been thoroughly mixed, after sweat-in.

Apply paint to the recommended film thickness and spreading rate as indicated below:

**Recommended Spreading Rate per coat:**  
 Wet mils: 7.0 - 13.5  
 Dry mils: 5.0 - 10.0\*  
 Coverage: 116 - 232 sq ft/gal approximate

**NOTE:** Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.  
 \* See Recommended Systems

**Drying Schedule @ 7.0 mils wet and 50% RH:**

	@ 40°F	@ 77°F	@ 100°F
To touch:	4-5 hours	2 hours	1½ hours
To handle:	48 hours	8 hours	4½ hours
To recoat:			
minimum:	48 hours	8 hours	4½ hours
maximum:	3 months	3 months	3 months
Cure for			
service:	10 days	7 days	4 days
immersion:	14 days	7 days	4 days

If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity and film thickness dependent.

**Pot Life:** 10 hours 4 hours 2 hours

**Sweat-in-time:** 30 minutes 30 minutes 15 minutes

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

**PERFORMANCE TIPS**

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

Do not mix previously catalyzed material with new.

Do not apply the material beyond recommended pot life.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer R7K15. In California use Reducer R7K111.

Tinting is not recommended for immersion service.

Use only Mil White and Black for immersion service.

Quik-Kick Epoxy Accelerator is acceptable for use. See data page 4.99 for details.

Refer to Product Information sheet for additional performance characteristics and properties.

**CLEAN UP INSTRUCTIONS**

Clean spills and spatters immediately with Reducer R7K15. Clean tools immediately after use with Reducer R7K15. In California use Reducer R7K111. Follow manufacturer's safety recommendations when using any solvent.

**SAFETY PRECAUTIONS**

Refer to the MSDS sheet before use.

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